Claims

1. Process for producing a hydrocarbon component of biological origin, **characterized** in that the process comprises at least two steps, the first one of which is a hydrodeoxygenation step and the second one is an isomerization step operated using the counter-current flow principle and comprising an optional stripping step, and that a biological raw material containing fatty acids and/or fatty acid esters serves as the feed stock.

2. Process according to claim 1, **characterized** in that a biological raw material selected from vegetable oils/fats, animal fats, fish oils and mixtures thereof is used as the feed stock.

3. Process according to claim 1 or 2, **characterized** in that wood-based or plant-based fats and oils, fats contained in plants bred by means of gene manipulation, animal-based fats, recycled fats of the food industry or mixtures of the above are used as the feed stock.

4. Process according to claim 3, **characterized** in that rapeseed oil, colza oil, canola oil, tall oil, sunflower oil, soybean oil, hempseed oil, olive oil, linseed oil, mustard oil, palm oil, peanut oil, castor oil, coconut oil, lard, tallow, train oil or fats contained in milk are used as the feed stock.

5. Process according to any of the above claims 1-4, **characterized** in that a mixture of a biological raw material and a hydrocarbon/hydrocarbons is used as the feed stock.

6. Process according to any of the above claims 1-5, **characterized** in that in the hydrodeoxygenation step, hydrogen gas and the biological raw material to be hydrogenated are passed to a hydrodeoxygenation catalyst bed either as co-current or as counter-current flows.

7. Process according to any of the above claims 1-6, **characterized** in that the hydrodeoxygenation catalyst bed system comprises one or more catalyst beds.

8. Process according to claim 7, **characterized** in that the hydrodeoxygenation catalyst bed system comprises two or more catalyst beds, one or more of which are operated using the counter-current flow principle.

9. Process according to any of the above claims 1-8, **characterized** in that in the hydrodeoxygenation step, the pressure varies in the range of 20-150 bar, preferably in the range of 50-100 bar, the temperature varying between 200 and 500 °C, preferably between 300 and 400 °C.

10. Process according to any of the above claims 1-9, **characterized** in that the gaseous stream from the hydrodeoxygenation step is cooled, carbon monoxide, carbon dioxide, nitrogen, phosphorus and sulphur compounds, gaseous light hydrocarbons and other impurities are removed therefrom, and then the hydrogen thus purified is recycled back to the hydrodeoxygenation or isomerization step.

11. Process according to claim 10, **characterized** in that water is removed from the hydrocarbon condensed by cooling prior to recycling it back to the hydrodeoxygenation step.

12. Process according to any of the above claims 1-11, **characterized** in that a liquid stream is withdrawn from the process downstream of one or several catalyst bed(s) of the hydrodeoxygenation step, which liquid stream is then cooled and water and water soluble impurities are removed therefrom, and the purified liquid stream is recycled back to the hydrodeoxygenation or isomerization step.

13. Process according to any of the above claims 1-12, **characterized** in that after the hydrodeoxygenation step, hydrogen gas, the component to be hydrogenated

and optionally a hydrocarbon mixture are passed as counter-current flows to the isomerization step.

14. Process according to claim 13, **characterized** in that a component to be hydrogenated counter-currently and optionally a hydrocarbon mixture are passed to the stripping unit of the isomerization step, and in the stripping unit catalyst poisons are removed.

15. Process according to any of the above claims 1-14, **characterized** in that in the isomerization step, the pressure varies in the range of 20-150 bar, preferably in the range of 20-100 bar, the temperature varying between 200 and 500 °C, preferably between 300 and 400 °C, the pressure in the isomerization step being preferably higher than in the hydrodeoxygenation step.

16. Process according to any of the above claims 1-15, **characterized** in that the hydrodeoxygenation and the isomerization steps are carried out in the same pressure vessel or in separate pressure vessels.

17. Process according to any of the above claims 1-16, **characterized** in that the biological raw material is subjected to prehydrogenation prior to the hydrodeoxygenation step.

18. Process according to claim 17, **characterized** in that the prehydrogenation is carried out at a hydrogen pressure of 1-200 bar and at a temperature of 50-400 °C, preferably at a pressure of 10-100 bar and at a temperature of 150-250 °C.

19. Process according to claim 17 or 18, **characterized** in that the prehydrogenation is carried out in the same pressure vessel as the hydrodeoxygenation and isomerization steps, or in a separate pressure vessel.

20. Process according to any of the above claims 1-19, **characterized** in that the prehydrogenation and/or hydrodeoxygenation is carried out in the presence of a hydrogenation catalyst, said hydrogenation catalyst containing a metal from the Group VIII and/or VIB of the Periodic System.

21. Process according to claim 20, **characterized** in that the hydrogenation catalyst is a supported Pd, Pt, Ni, NiMo or a CoMo catalyst, the support being alumina and/or silica.

22. Process according to any of the above claims 1-21, **characterized** in that an isomerization catalyst is used in the isomerization step, and the isomerization catalyst contains molecular sieve.

23. Process according to claim 22, **characterized** in that metal from the Element Group VIII has been added to the isomerization catalyst.

24. Process according to claim 22 or 23, **characterized** in that the isomerization catalyst contains Al_2O_3 or SiO_2.

25. Process according to any of the above claims 22-24, **characterized** in that the isomerization catalyst contains SAPO-11 or SAPO-41 or ZSM-22 or ZSM-23 or ferrierite and Pt or Pd or Ni and Al_2O_3 or SiO_2.